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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,947	04/08/2005	Olli Hyvarinen	4819-4740	2356
27123 7590 11/02/2007 MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			EXAMINER MCGUTHRY BANKS, TIMA MICHELE	
			ART UNIT 1793	PAPER NUMBER
			NOTIFICATION DATE 11/02/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/530,947	Applicant(s) HYVARINEN ET AL.	
	Examiner Tima M. McGuthry-Banks	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>04/08/2005</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Status of Claims

Claims 1-19 are presented as amended in the paper filed 8 April 2005.

Claim Objections

Claims 5 and 6 are objected to because of the following informalities: Claims 5 states the particle size of the fine-grained copper is less than 200 pm (picometers). The specification states that the particle size of the fine-grained copper is less than 200 μm (micrometers). Since a picometer is smaller than a micrometer by a factor of 10^6 , the examiner will interpret the claim as having a particle size of micrometers and the limitation of picometers as a typographical error.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 7 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everett (US 5,487,819).

Everett discloses producing one or more metals from a mineral feedstock. The electrolyte has a high chloride content and has ionic copper dissolved therein (column 8, lines 11 and 12). After leaching a first stage purification is performed using electrowinning. Ionic mercury is added. A Cu/Hg/Ag amalgam forms on a titanium cathode (column 16, lines 48-53). The anode can be granular or briquetted copper (column 12, lines 21 and 22). The amalgam was dissolved to form cupric and mercuric ions. It is inherent that the ions would form chlorides, since chloride solutions are used in the leaching. AgCl was precipitated and treated to produce silver metal. Cupric, mercuric, and any remaining silver ions were recycled to the silver recovery cell (column 16, lines 55-60). Regarding the limitation of a preselected molar ratio, the molar ratios in Claims 2-4, the concentrated chloride solution in Claim 14, and the copper concentration in Claims 15, a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation; therefore a *prima facie* case of obviousness exists. See MPEP § 2144.05 II B. Regarding Claim 7, countercurrently feeding copper powder in relation to the solution flow is within the scope of the prior art teaching of Everett. Regarding Claim 16, the pH of the cuprous chloride solution is less than 3.5; in the case where the claimed ranges overlap or lie inside ranges disclosed by the

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prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05. Regarding Claim 17, silver chloride is precipitated after a Cu/Hg/Ag amalgam is formed.

Claims 5, 6, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everett as applied to claims 1 and 17 above, and further in view of the Peters et al (US 4,124,379) and "Grit and Microgrit Grading Conversion Chart."

Everett discloses the invention substantially as claimed. Though Everett discloses granular copper in column 12, lines 21 and 22, Everett does not disclose the size of the granules. Peters et al teaches recovering silver from chloride solutions using mercury. The copper amalgam was prepared with 150 mesh copper powder (column 5, lines 65 and 66). Additionally, "Conversion Chart" teaches that 150 mesh is between 76 and 89 microns.

Regarding Claims 5 and 18, Peters et al compliments the teaching of Everett by teaching the size of the copper used for amalgamation of silver and mercury. Furthermore, Everett and Peters et al demonstrate that using particulated copper is well known in the art for amalgamation of silver.

Regarding the amount of copper powder feed Claims 6 and 19, a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation; therefore a *prima facie* case of obviousness exists. See MPEP § 2144.05 II B.

Claims 8, 9, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everett as applied to claim 1 above, and further in view of Bertha (US 4,666,514).

Everett discloses forming a Cu/Hg/Ag amalgam on the cathode, dissolving the amalgam into cupric and mercuric ions that are recycled, and precipitating silver chloride. However,

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Everett does not disclose precipitating with an oxidant as in Claim 8 or that the oxidant is hypochlorite as in Claim 9.

Bertha teaches removing silver from sludge formed at the anode in copper electrolysis (abstract). The sludge is subjected to chlorination by hypochlorite in the presence of HCl. The silver present is converted into a silver chloride precipitate (column 3, lines 18-46).

Regarding Claims 8 and 9, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the sludge removal process of Bertha in the silver chloride precipitation of Everett, since the process of Bertha is noncorrosive, easier, and safer to perform than previously disclosed silver recovery processes (column 3, lines 1-5).

Regarding Claims 12 and 13, AgCl was precipitated and treated to produce silver metal. Cupric, mercuric, and any remaining silver ions were recycled to the silver recovery cell (Everett, column 16, lines 55-60).

Claims 8, 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everett as applied to claim 1 above, and further in view of Stanley et al (US 4,670,052).

Everett discloses forming a Cu/Hg/Ag amalgam on the cathode, dissolving the amalgam into cupric and mercuric ions that are recycled, and precipitating silver chloride. However, Everett does not disclose precipitating with an oxidant as in Claim 8 or that the oxidant is hydrogen peroxide as in Claim 10.

Stanley et al teaches leaching refinery anode sludge with HCL and hydrogen peroxide to remove silver from the leach slurry as insoluble silver chloride (column 1, line 66 to column 2, line 1).

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Regarding Claims 8 and 10, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the sludge removal process of Stanley et al in the silver chloride precipitation of Everett, since the process of Stanley et al yields high recoveries of metals (column 4, lines 40-48).

Regarding Claims 12 and 13, AgCl was precipitated and treated to produce silver metal. Cupric, mercuric, and any remaining silver ions were recycled to the silver recovery cell (Everett, column 16, lines 55-60).

Claims 8 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everett as applied to claim 1 above, and further in view of Derwent Acc-No. 1983-789093.

Everett discloses forming a Cu/Hg/Ag amalgam on the cathode, dissolving the amalgam into cupric and mercuric ions that are recycled, and precipitating silver chloride. However, Everett does not disclose precipitating with an oxidant as in Claim 8 or that the oxidant is oxygen as in Claim 10.

Derwent '093 teaches recovering metals from anode slimes containing metals such as Cu by simultaneous leaching with HCl and air or oxygen to obtain a silver chloride-rich residue (abstract).

Regarding Claims 8 and 10, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the sludge removal process of Derwent '093 in the silver chloride precipitation of Everett, since the process of Derwent '093 is economical, gives higher yields and is less environmentally polluting than previously known recovery processes (abstract).

Regarding Claims 12 and 13, AgCl was precipitated and treated to produce silver metal. Cupric, mercuric, and any remaining silver ions were recycled to the silver recovery cell (Everett, column 16, lines 55-60).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sammut et al disclose a hydrometallurgical process for the production of pure copper and precious metals from sulfide concentrates. A machine translation of DE3812501 discloses a procedure for separating and recovering silver and mercury from sulfuric acid solutions. GB 2,118,536 A is a patent listed in the family of Derwent Acc. 1983-789093.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tima M. McGuthry-Banks whose telephone number is (571) 272-2744. The examiner can normally be reached on M-F 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

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like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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12 October 2007

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